2000/2001 Northland News

USDA-NRCS Plant Materials Center

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"Plants for the Northland"

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Itasca Germplasm to be Released

Little bluestem is a native warm-season bunchgrass common to both the mixed and tallgrass prairie.

Close-up view shows mature seed heads of little bluestem.

Itasca Germplasm Little Bluestem To Be Released

Itasca Germplasm is a selected class of naturally occurring little bluestem vegetatively collected from 72 different sites in Minnesota, North Dakota, and South Dakota. The population which makes up Itasca Germplasm was selected from an initial evaluation nursery of more than 7,000 individual plants. The selected plants were rated above the nursery average for disease resistance, leafiness, and seed production. The general plant description of Itasca Germplasm does not differ from naturally occurring plants typical of the species in this region. Some variation in plant size and color may be noted because of the broad genetic base of the population. Itasca Germplasm is comparable to the release Badlands Ecotype in performance and phenology. The varieties 'Blaze' and 'Camper' are taller and approximately 4 weeks later in maturity than Itasca Germplasm as observed at Bismarck. The primary conservation use of Itasca Germplasm is as a northern source component species for various native seedings.

Dwight Tober, Plant Materials Specialist

Seeing Is Believing

The Burleigh County Soil Conservation District (BCSCD) recognizes the benefits of pasture and hayland sustainability. Encouraging alternative legume use in new and existing stands will increase infiltration, nutrient cycling, soil health, organic matter and nitrogen through the biological nitrogen fixation process. It also addresses the problems of low soil fertility, increasing operating expenses, and decreasing farm income.

An EQIP educational assistance application was submitted after researching and selecting six grasses and nine legumes suitable for North Dakota. Thirty-five grass/legume combinations were seeded during May 2000. The demonstration plot is large enough so people can visualize what each combination will look like on a large scale. After all, seeing is believing.

A site with high visibility and easy access for demonstration tours and maintenance was selected. A local producer, Al Steinke, agreed to lease the BCSCD approximately 6 acres adjacent to Highway 10. He installed a large, easy-access gate and mowed the plot for weed control. Additional contributing partners include the Plant Materials Center, which donated the leadplant seed, and Lipha-Tech, which donated the legume innoculants. The innoculants are species specific.

Obtaining small seed quantities for each species was not a significant problem. The price per pound for small quantities was higher than anticipated. The first tour will be held during the summer of 2001. Watch for the BCSCD newsletter.

Tracy Dove, Bismarck Field Office

Specialist's Comments

Spring is here, and I'm sure everyone is ready to move outdoors and start another field season! Hopefully, the paperwork and seed cleaning are done. The workload at the Plant Materials Center (PMC) changes to wrapping trees, bagging grass seed, burning warm-season grasses, and starting field work. Seed/plant orders at the PMC are sent out to district cooperators and various partners for one of three purposes, which are: 1) field planting evaluation; 2) certified seed/plant production; or 3) special planting for demonstration purposes. Generally, we average about 100 plant materials orders every year as approved by each state plant materials committee.

Field Plantings

Interest has been fairly high on most of the plant materials available for field planting evaluation. Sweetgrass continues to be popular in all three states. The black chokeberry has also had a lot of interest. The seedlings were too small to dig for this year, so we hope to be able to offer this source material again in 2002. 'Trailhead' basin wildrye and 'Mankota' Russian wildrye were available for evaluation and demonstration in the Dakotas, but there were no requests. A field planting review is being scheduled in each state this year. Selected field offices will be contacted and field plantings of 9008041 false indigo and 9035212 sandbar willow will be evaluated.

Special Plantings for Demonstration

The PMC continues to provide small packets of grass seed for educational/promotional type plantings. It is best to initiate these orders during the winter months, as they can be quite time consuming to prepare. The PMC is no longer providing packets of the native forb/legume (wildflower) species. Most of this

material is readily available from various vendors/sources. The exception would be to specifically test accessions/releases of new material from the PMC.

Carbon Sequestration – Switchgrass Sampling

I would like to thank the field offices in all three states that provided sites to sample as part of the Agricultural Research Service (ARS) Carbon Sequestration Project. The staff at the Northern Great Plains Research Laboratory at Mandan, North Dakota is very appreciative and complimentary of the assistance they received. Selecting good sites and completing the background information was essential to the project. Increasing the amount of carbon sequestered in soil through agriculture may provide a way to alleviate the rising CO_2 levels while providing producers in the region with an added source of income. Switchgrass is one of the leading candidates because of the high biomass potential.

North Dakota Tree Handbook Online

North Dakota State University has done a great job of providing online access to the North Dakota Tree Handbook. This is an excellent reference for cooperators/partners interested in tree and shrub planting in the Northern Great Plains or upper Midwest. The handbook provides species/variety information, plant characteristics, color photos, and planning considerations for various conservation plantings. The site is available at http://www.ag.ndsu.nodak.edu/aginfo/trees/handbook.htm.

Dwight Tober, Plant Materials Specialist

Larch – A Colorful Tree

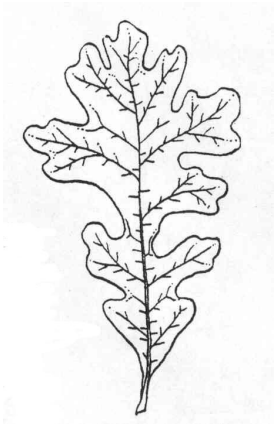
The larches are an unusual and under used group of trees. They are conifers that lose their needles in the fall. Before dropping, the needles are usually a pretty, golden yellow color; and in early spring the new needles flush out in a soft green color. If bare-root seedlings are transplanted after the growth of the needles has started, the seedlings will likely have poor survival. One way to avoid some of this setback is to plant containerized stock.

The only larch that is native to the Midwest is the eastern larch or tamarack, which is found in the bogs of northern Minnesota. Tamarack has been planted at several Field Evaluation Plantings (FEP), where it has done surprisingly well. At Highmore, South Dakota, the height of the tallest trees is almost 19 feet after ten growing seasons. Siberian larch is an introduced species that has been planted by the PMC at many of the FEPs. A total of seven different accessions are being tested. The former US Forest Service Shelterbelt Laboratory at Bottineau, North Dakota, originally assembled the faster growing accessions. Some of the planting sites where this species has shown excellent growth are McKenzie, Dickinson and Williston in North Dakota, and at Highmore in South Dakota. The soils at these sites vary from silt loams to sandy loams. These trees can do very well if the deer leave them alone. Bucks especially seem to like to rub on the stems of vigorous young trees. The height of some of the tallest trees is over 27 feet after 20 growing seasons. Recently, the PMC has begun testing several accessions of the Dahurian larch from northeastern China. In tests carried out by the Canadian nursery at Indian Head, Saskatchewan, the Dahurian larch showed poorer survival and vigor than the Siberian larch.

Siberian larch is available from the North Dakota Forest Service nursery at Towner, North Dakota. According to Roy LaFramboise, their annual sales average 6200 trees per year. In 2000, fifty-six percent of their sales were to out-of-state buyers. The larches that are sold in North Dakota are mainly planted in the eastern 2/3 of the state. Growers have reported to Roy that these trees do very well.

Mike Knudson, Forester

What Kind of Oak is This?



Line drawing was taken from the book Minnesota Trees, by David M. Rathke.

There are about 300 species of oaks, but only one is native to North Dakota and South Dakota. This is the bur oak that has managed to survive on the prairies, where fires were common. Bur oak is part of the white oak class of oaks which all have leaves with rounded lobes. In Minnesota, there are six more species of native oaks that are common to forested regions. Among the more widespread are red oak, white oak, and northern pin oak. Three other species that occur less frequently

are swamp white oak, chinquapin oak, and black oak. Few American oaks have a wider range than the bur oak, which extends from Nova Scotia, west to Saskatchewan, and south to southern Texas.

Line drawing was taken from the book Minnesota Trees, by David M. Rathke.

In 1991 and 1992, the Soil Conservation Service field offices assisted the Bismarck PMC, state forestry agencies and the ARS in gathering acorns. During the collection period, acorns were harvested at 236 locations from Saskatchewan to Texas. In 1993 and 1994, these acorns were planted at 15 locations in the Great Plains. The ARS personnel at the Northern Great Plains Research Laboratory planted 90 different accessions in replicated plots at Mandan, North Dakota, with all trees placed within tree shelters. Many of these accessions were collected in North Dakota. In 1997, after five growing seasons the trees were measured. The tallest tree in the Mandan planting measured 7.3 feet and was an accession (112) collected in Pennington County, South Dakota. The use of tree shelters has a positive effect on tree height of bur oak. The tree shelters were removed in 2000. According to John Weaver, a former plant ecologist from Nebraska, three-year-old bur oaks already had a root system that reached down to almost 7 feet. After ten years, in 2002, the trees at Mandan will once again be evaluated for height, shoot length and disease symptoms. At that time, the trees should be large enough to make selections of superior plants.

A bur oak planting was also made by the Plant Materials Center at Bridger, Montana. The staff there is interested in selecting superior plants for Montana, where rainfall is in a 10-12 inch annual precipitation zone. There were some six-year-old seedlings at Bridger that were 9 feet tall. They also have a number of North Dakota seed sources, but most of the seed sources that look the best in Montana were not included in the Mandan planting. The tallest and most vigorous accession (228) is one collected in Sioux County, North Dakota, by Robert Waliser. The accession (112) from Pennington County, South Dakota, is also doing well at the Bridger planting.

Mike Knudson, Forester

Urban Conservation and Prairie Landscaping

Badlands little bluestem being evaluated in a landscape trial in Minnesota

The plant materials program continues to be extensively involved in various projects related to urban conservation. Technical assistance was provided on numerous projects last year including: the Xeriscape Gardens and the Conservancy Park in Fargo, North Dakota; a City Forestry Department prairie planting and low-maintenance grass trial in Fargo, North Dakota; various Metro Area lakescaping projects in the Minneapolis/St. Paul area; the Dakota Zoo wetland restoration project in Bismarck, North Dakota; the new Horizon Middle School prairie planting in Bismarck; a buffalograss and blue grama planting at the Lewis and Clark Interpretive Center at Washburn, North Dakota; and prairie landscaping trials at Dickinson, North Dakota and Morris, Minnesota. Interest continues to grow on the use of native species for reduced maintenance and low water use plantings in an urban setting. A color brochure has been developed by the Bismarck Plant Materials Center titled “Native Grasses for Prairie Landscaping” and is available upon request.

Dwight Tober, Plant Materials Specialist

Why Test Your Seed?

There are various reasons that you may need to have seed tested. Testing can give you an indication of the quality of your seed. Listed below are a few reasons for sending in a sample of seed for testing.

Selling seed. Seed sold MUST be tested and information recorded on label.

Stored seed. Seed stored for extended periods of time in any conditions should be tested. Seed stored for short or extended periods of time under humid or hot conditions, or

extreme fluctuations, should be tested, as some seed may die.

Tag discrepancy. If you feel there is a problem with information on the tag, you should have seed re-tested.

Homegrown seed. If you harvest your own seed and intend to re-seed on your farm, you should have it tested to determine germination and purity. This will be vital for determining Pure Live Seed (PLS).

Seed cleaning. To determine if the seed cleaning procedure is adequate, it may be necessary to send in a seed sample before finishing the lot.

There are various seed testing laboratories, both private and public. Either type of laboratory can adequately test your seed. As we are not aware of some of the local private laboratories and don't want to leave any out, we have not listed any of them. Listed below are a few of the public laboratories in the area.

North Dakota State Seed Department
P.O. Box 5257
Fargo, ND 58105
Phone: (701)239-7210

SDSU Seed Testing Laboratory
Plant Science Department
AgHall 240
P.O. Box 2207-A
Brookings, SD 57007
Phone: (605)688-4589

Montana State Seed Testing Laboratory
MSU-Bozeman
Room 710LJH
P.O. Box 173145
Bozeman, MT 59717
Phone: (406)994-2141

Seed Testing Laboratory
Minnesota Crop Improvement Association
1900 Hendon Ave.
St. Paul, MN 55108
Phone: (612)625-7766 or (888)216-8636

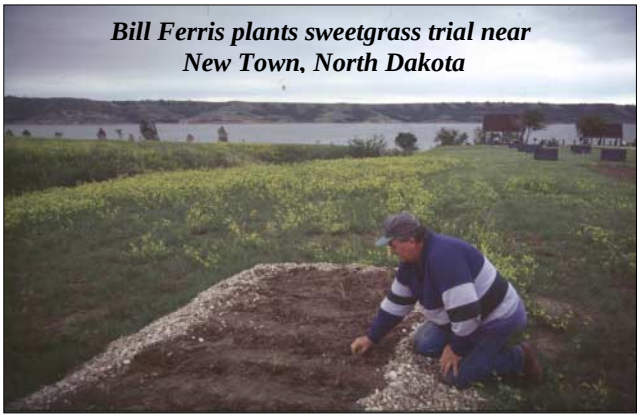
Minnesota Department of Agriculture
Laboratory Services Div.-Seed Lab Section
90 West Plato Blvd
St. Paul, MN 55107
Phone: (651)296-4749

Nancy Jensen, Agronomist

Tribal Outreach

The Plant Materials Center has been active in working with various tribal cooperators in the three-state area. More than a dozen sweetgrass field plantings and demonstrations were established last year primarily with tribal cooperators and many more are scheduled for this year. Additional activities have included: demonstration plantings with Fort Berthold Community College near New Town, North Dakota; a river bank stabilization project on the Cheyenne Indian Reservation near Eagle Butte, South Dakota; a demonstration planting (Medicine Wheel) with United Tribes Technical College at Bismarck; and demonstration plantings with the Fond Du Lac Tribal Community College at Cloquet, Minnesota. Plans are underway to provide technical assistance and foundation seed for a demonstration seed increase planting this spring with the Sisseton/Wahpeton Sioux Tribe near Sisseton, South Dakota.

Dwight Tober, Plant Materials Specialist



Bill Ferris plants sweetgrass trial near New Town, North Dakota

Plant Reference Publications

Do you need a plant reference book? Check out these recent publications. They are complete with beautiful color pictures and pertinent information about various forbs and grasses of the Northern Great Plains. You may order from the sources listed below or your local bookstore. Happy reading!

Grassland Plants of South Dakota and the Northern Great Plains
Authors: James R. Johnson and Gary E. Larson
B566 (rev.), August 1999
South Dakota State University Ag Publications
SDSU, Box 2231
Brookings, SD 57007
Phone: Ag Bulletin Room at 1-605-688-5628

Plants of the Black Hills and Bear Lodge Mountains
Authors: Gary E. Larson and James R. Johnson
B732, August 1999
SDSU, Box 2231
Brookings, SD 57007
Phone: Ag Bulletin Room at 1-605-688-5628

Selected North Dakota and Minnesota Range Plants
Authors: Kevin K. Sedivec and William T. Barker
North Dakota State University Extension Service
EB-69, September 1997
Distribution Center
P.O. Box 5655, Fargo, ND 58105
Phone: 701-231-7883
E-mail: slane@ndsuext.nodak.edu

Vascular Plants of Minnesota
Authors: Gerald B. Dunbey and Thomas Morley
University of Minnesota, 1991
Contact: Prairie Restorations, Inc.
P.O. Box 327, Princeton, MN 55371
Phone: 763-389-4342
Nancy Jensen, Agronomist

Prairie Restoration Update

Sculptured seeding of native shrubs into chemically prepared seedbed

This (2001) marks the beginning of the fourth year of the five-year cooperative agreement with the North Dakota State Game and Fish Department. The year 2000 found the plant materials staff collecting information on plantings from 1998 and 1999. We are currently monitoring plantings that include diverse mixtures of native grasses and forbs. Sculptured plantings consist of five native shrubs planted into chemically prepared seedbeds. We are also monitoring methods of enhancing existing native grass stands by inter-seeding native forbs into existing native stands, as well as planting forbs within chemically prepared strips in native grass stands. An additional 60 acres of bromegrass sod is planned for renovation in the spring of 2001. At the end of the five-year project, this information will be compiled and a restoration guide will be developed for use by field offices and others interested in native prairie restoration.

Wayne Duckwitz, PMC Manager

Plant Materials Training

Tour of Apple Valley tree and shrub Field Evaluation Planting

Fifty NRCS and SCD staff from Minnesota and North Dakota participated in the plant materials training held at the Bismarck Plant Materials Center in July of 2000. Participants were given the opportunity to broaden their awareness of the plant materials program. Discussions were held concerning the program, various plant issues, seed cleaning, drill calibration, and seed quality. Field tours of the Plant Materials Center and Lincoln-Oakes Nursery were also scheduled during the session. Overall, the responses have been positive and plans are to offer the training again to the three states in 2001. We plan to increase the length of the training this year from two days to a three-day session. This additional day will give the participants hands-on training opportunities on plant related topics. It will provide a good opportunity for people to share ideas and discuss issues facing the field offices and conservation districts. Participants will also increase their awareness of how they can use the plant materials program to benefit their offices.

Wayne Duckwitz, PMC Manager

Did You Know?

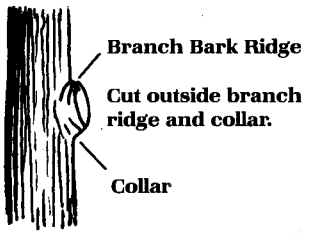
Little bluestem (*Schizachyrium scoparium*) was used by Native Americans for various purposes. Lakota rubbed the grass into softness and used as fur-like insulation in moccasins during the winter. Comanche used bundles of stems as switches in the sweat lodge.
(1998. Daniel Moerman. Native American Ethnobotany. Timber Press, Portland, OR.)

Pointers on Pruning

There are several reasons why one should consider pruning trees and shrubs. One of the best reasons for the pruning of tree and shrub rows is to decrease their winter density so more winds will move through the canopy and thus spread snow over a larger crop area. Sometimes pruning is needed to rejuvenate old, over-grown trees and shrubs, or even to encourage young plants to develop certain form. Fruit growers prune to get bigger, better fruit and to prolong the life of their trees. Apples are bigger and redder if they and the leaves on the same spur are exposed to high light. Using a tarp to collect fruit in the fall is a lot easier if the lower branches have been pruned back. Pruning can also be used to repair damages to a damaged leader on conifers. A side branch can be trained to take the place of a broken leader.

The appropriate time to prune will depend on the type of plant, its condition, and the results desired. Light pruning can be done at any time of the year. Unwanted growth is most easily done while it is small, and early removal will have less of a dwarfing effect. Broken, dead, weak, or heavily shaded branches can be removed with little or no effect on a plant no matter what the timing. Most deciduous plants can be pruned any time during the dormant period between leaf-fall and spring growth with similar results. Some of the most common plants which should be pruned in the winter include green ash, fruit trees such as plum and chokecherry, hawthorn, oak, willow, mountain ash, and apples, including crabapple. Winter pruning results in a vigorous burst of new growth in the spring and should be used if that is the desired effect.

There are several types of trees and shrubs that should be pruned in the summer. The trees include maples, walnuts, birches, elms and poplars. If you wish to maximize flowering, especially in shrubs, timing will depend on the flowering habit of the plant. Plants that flower in the spring from buds on one-year-old wood, such as lilac and honeysuckle, should be pruned near the end of their blooming period. Another reason to prune in the summer is for corrective purposes. Defective limbs or those that hang down too far under the weight of leaves can be seen more easily.



The best time to begin pruning is when the plant is still young, so that the pruning wounds are small and heal quickly. When pruning small branches that have not formed a bark ridge and collar, cut back flush with the stem or large limb. When pruning larger limbs, cut just outside the bark ridge or collar and at a slight down-and-outward angle, so as not to injure the collar. Do not leave a protruding stub. It is not necessary to put a coating on the wound. Evidence has shown that tree paint or asphalt does not prevent or reduce decay.

Mike Knudson, Forester

Carex

What is the Plant Materials Center doing related to wetlands? One study currently underway is the evaluation of slough sedge (*Carex atherodes)*. Our intent is to develop and release a seed source to the public that is adapted to the Dakotas, Minnesota and bordering parts of Manitoba and Saskatchewan. *Carex atherodes* seed could be used to revegetate shallow marsh zones, wet meadows, pond margins, and seasonal wetlands.

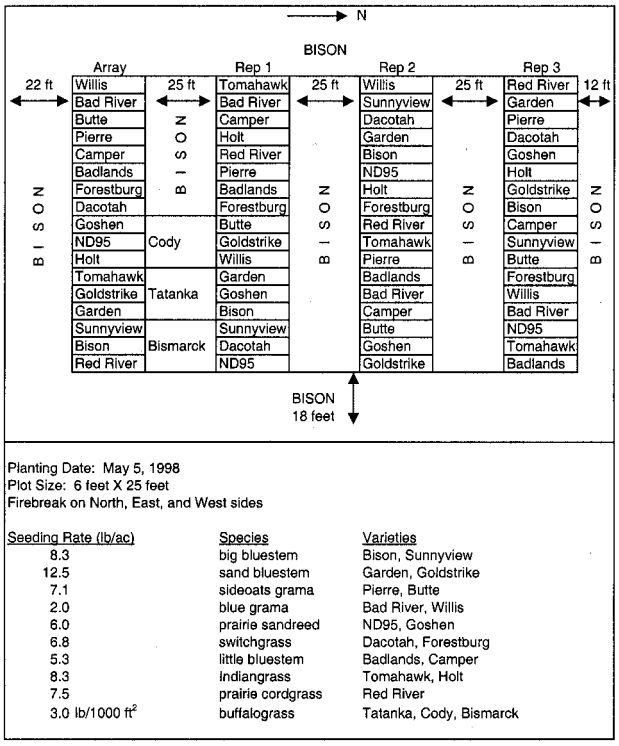
In 2000, which marks the fourth year of the study, 19 different plants from a spaced plant field at the PMC were noted to be superior in vigor, growth, and seed production. Seed was harvested from the chosen plants. In 2001, this seed will be propagated and seedlings will be planted to a field that will be used as a seed source.

Seed production and seed germination are poor for this species. These continue to be a challenge in the release process. Once these challenges are overcome, a release will be made and seed will be available for use.

Nancy Jensen, Agronomist

Home on the Range

Are you familiar with the old tune, "Home on the Range?" Remember those words, "where the deer and the antelope play?" Every time I hear it, my mind wanders to the open ranges of western North and South Dakota. I envision vast prairie with short grasses and showy wildflowers. That is, until now. Oh, I still see the same picture, but with a few taller grasses. Yes, only a plant person would think of such things!



Planting Date: May 5, 1998
Plot Size: 6 feet X 25 feet
Firebreak on North, East, and West sides

Seeding Rate (lb/ac)	Species	Varieties
8.3	big bluestem	Bison, Sunnyview
12.5	sand bluestem	Garden, Goldstrike
7.1	sideoats grama	Pierre, Butte
2.0	blue grama	Bad River, Willis
6.0	prairie sandreed	ND95, Goshen
6.8	switchgrass	Dacotah, Forestburg
5.3	little bluestem	Badlands, Camper
8.3	indiangrass	Tomahawk, Holt
7.5	prairie cordgrass	Red River
3.0 lb/1000 ft^2	buffalograss	Tatanka, Cody, Bismarck

The Bismarck PMC, along with the Adams County SCD, Joseph Clement, and NDSU began a warm-season grass study near Hettinger, which is in southwestern North Dakota, in 1998 (see plot layout and list of entries in previous column). The purpose of the study was to evaluate plant performance, forage production, and forage quality of selected warm-season grass species. Portions of the 6'x25' plots have been clipped on a scheduled basis by NDSU since 1998, and forage quality and production are being analyzed. Results from NDSU should be out sometime this year. Though the plots have been slow to establish on this sandy loam soil (Vebar-Flasher), we have seen some interesting results. Tall grass species such as switchgrass and big bluestem are growing fairly well alongside the short grasses of sideoats and blue grama. Does it give you a different picture of the possibilities of the prairie lands where the deer and the antelope play? Or where the cows and the calves graze?

Nancy Jensen, Agronomist

Biomass Feedstock

The United States Department of Energy has identified the Northern Great Plains as one of the most promising regions in the United States for production of biomass feedstock for the biofuel industry. Because of its ability to produce high amounts of biomass from minimal inputs on marginal cropland, switchgrass is currently the major species of interest for production of feedstock in our region. Therefore, a new switchgrass breeding program was initiated by South Dakota State University during 2000. Nurseries containing selected families from 'Summer', 'Sunburst', and high-biomass-producing populations developed by Dr. C. Taliaferro from Oklahoma State University and Dr. K. Vogel from USDA-ARS at Lincoln, Nebraska, were established at Aurora, Highmore, and Kimball, South Dakota, during early June. The nurseries will be harvested for biomass once a year at the end of the growing season during 2001 and 2002. The plasticity of morphological components of biomass production will be described, and heritabilities for biomass production will be determined based on individual and family selection. Careful attention will also be paid to disease resistance and seed production. The expected outcome of this research is the development within the next five years of a new switchgrass cultivar specifically intended for biomass production in the Northern Great Plains.

Forage and seed production data were obtained during 2000 for two Indiangrass populations (bulk seed was originally collected from relict prairies near Yankton and Brookings, South Dakota) growing in spaced-plant nurseries at Brookings and Aurora, South Dakota. Plants from the Yankton prairie produced nearly twice as much dry matter as plants from the Brookings prairie each year during 1999 and 2000. Plants from the Yankton prairie were later, taller, and produced more leaves per stem than plants from the Brookings prairie. Although the two relict prairies are separated latitudinally by less than 100 miles, their Indiangrass populations are quite phenologically and morphologically distinct. Nurseries will be evaluated for at least one more year before selection for cultivar development is initiated.

Progress towards cultivar development continues in winterhardy, self-pollinating strawberry clover (*Trifolium fragiferum*) and disease resistant, highly digestible, glaucous creeping foxtail (*Alopecurus arundinaceus*) populations. A breeder's field containing about 50 clones of strawberry clover was established during 2000. Selection of breeder's clones of creeping foxtail will be made at the end of the 2001 growing season. The expected new cultivar of strawberry clover will have potential for increasing forage production and enhancing forage quality from poorly-drained areas with salinity problems that are unsuitable for most other annual and perennial crops. The expected new cultivar of creeping foxtail will offer improvements in seedling vigor and forage quality compared with 'Garrison'.

Substantial progress was made during 2000 as a result of the collaborative effort between South Dakota State University and the Bismarck PMC on cup plant (*Silphium perfoliatum*). Nurseries planted at Brookings and Aurora, South Dakota, and the Bismarck PMC during 1999 survived the winter well and produced vigorous growth up to 8 feet in height during 2000. Paula Loewe, a new graduate student on the forage breeding project, is conducting her thesis research on cup plant. Her studies involve: (1) obtaining a basic understanding of the vegetative growth pattern and reproductive biology, and (2) determining genetic variation for traits of agronomic and conservation interest (e.g., tiller density, plant height, biomass production, leaves per stem, leaf-to-stem ratio, resistance to lodging, seed yield and quality). Nurseries in South and North Dakota contain about 50 half-sib families derived from populations indigenous to Minnesota and Illinois. This past summer, Paula conducted controlled pollinations and collected morphological, biomass production, and seed production and quality data from the two locations in eastern South Dakota. She also collected morphological data from the Bismarck nursery. During 2001, she will evaluate inbred and open-pollinated lines from the 2000 seed crop for germination and seedling growth rates. She will also monitor growth and development from emergence in the spring through seed maturity at the two South Dakota locations and collect morphological and

cup plant at the PMC

biomass and seed production data from all three nurseries. Knowledge gained from Paula's research will provide important information regarding the potential of cup plant for biomass, forage, and/or conservation in the Dakotas.

Dr. Arvid Boe, South Dakota State University

All plants are our brothers and sisters.

They talk to us, and if we listen carefully, we can hear them. - Arapaho belief

Harvest Notes

The PMC has cooperated with other agencies in the release of more than 20 grass varieties. As long as there are growers interested in a particular variety, the PMC needs to be able to provide foundation seed. Most of the released varieties are currently in production at the PMC. During the past growing season, the staff harvested seed of 13 of the released grass varieties. This harvest yielded about 8,200 pounds of bulk seed. The seed is air dried on concrete floors and then bagged and stored until the winter months. PMC Seed Processing Technician, Mike Bellon, spends all winter cleaning these lots on the various machines at the center.

Large tote bags store hundreds of pounds of seed

Several of the older releases were formerly raised at the NDSU Agronomy Seed Farm at Casselton, North Dakota. The production of Nordan crested wheatgrass, Lodorm green needlegrass, and Dacotah switchgrass has been taken over by the staff at the North Central Research Extension Center near Minot, North Dakota. This year, they harvested almost 4,300 pounds of seed, which was delivered to the PMC in large tote bags. The PMC will process and allocate this seed in the same manner as the seed raised at Bismarck.

Mike Knudson, Forester

Agroforestry Evaluation Site

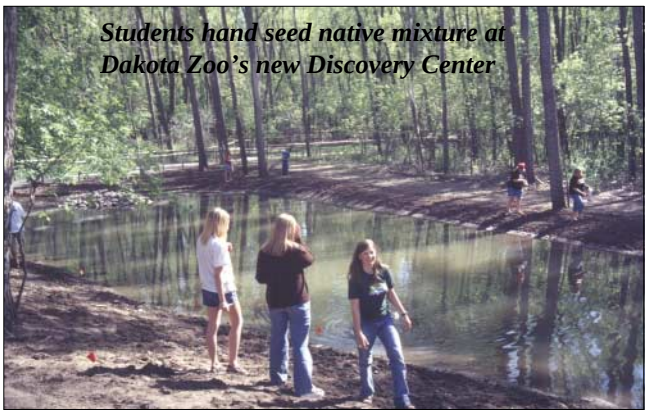
Planting began last spring on the new Agroforestry Field Evaluation Planting site located in central Minnesota near Staples. The evaluation trial is located at the Central Lakes Agricultural Center at Central Lakes College. The objective of the long-term evaluation is to demonstrate potential agroforestry technology related to establishment/management techniques and to test the performance and adaptation of selected plant species for conservation benefits, as well as potential income sources. Mike Demchik is Extension Educator at the college and has leadership responsibility for the evaluation.

The soils are sandy loams. Irrigation is available at the station and one of the treatments is irrigated versus dryland. Both woody and herbaceous single-row wind barriers are being established to protect small fields where various perennial alley crops will be planted. Species planted for wind barriers last spring included Nanking cherry, chokeberry, seaberry, hazelnut, sugar maple, leadplant, and prairie cordgrass. Seed and fruit production will be evaluated for potential as an income crop. A poplar planting with three varieties was also planted last year with an additional treatment of pruned versus not pruned. Sweetgrass was planted to determine adaptation and performance as a culturally significant plant. Additional species will be added each year and the first alley crop of narrow-leaved purple coneflower (*Echinacea angustifolia)* is scheduled for seeding in October. Initial establishment and survival was excellent for all entries. Plans are underway to install signs for identification and the site should be ready for self-guided tours beginning this summer. Stop by and take a look if you're in the area!

Dwight Tober, Plant Materials Specialist

Students Plant Natives

Students from the Bismarck High School Environmental Club planted native grasses and wildflowers last spring at the newly created wetland adjoining the Discovery Center at the Dakota Zoo in Bismarck, North Dakota. The Discovery Center is a "hands-on" wetland laboratory designed to provide students and the public with the opportunity to explore the exciting world of wetlands! The new building at the Dakota Zoo is expected to attract thousands



Students hand seed native mixture at Dakota Zoo's new Discovery Center

of students annually and is being setup with the latest educational technology and instructional materials.

The Bismarck Plant Materials Center provided seed of native grass varieties to establish a sculptured planting of various upland and wet meadow plant species. Native forbs and legumes included purple prairieclover, narrow-leaved purple coneflower, wild flax, yellow coneflower, and plains coreopsis. The students along with their advisor, Dave Angell, hand seeded the mixture and installed a straw blanket mulch on the steeper sites. A new wetland plant release from the PMC, Red River prairie cordgrass, was planted from rhizomes along the shore of the wetland. Partial funding for installation of the wetland was provided through the Wildlife Habitat Incentives Program (WHIP).

Dwight Tober, Plant Materials Specialist

Behind the Scenes

The PMC would not operate as well as it does without the seasonal employees who are hired each spring. In 2000, Jack Biesterfeld, a teacher at Steele-Dawson High School, returned for his fifth season. Jennifer Harmon also returned for another season. First year employees included Jesse Biesterfeld, Barrett

Jennifer Harmon and Mike Bellon spray weeds on PMC plots

Berube, and Lee Hanson. Their efforts at mowing, weeding, and spraying at the PMC and off-site locations were very much appreciated by the rest of the staff. Thanks!

Mike Knudson, Forester

Native Plant Summit VI

Native Plant Summit VI will be held May 1-2, 2001 at the Victoria Inn, 3550 Victoria Ave., Brandon, Manitoba, Canada. The meeting is hosted by Native Plant Solutions Ducks Unlimited Canada (DUC). Native Plant Summit VI provides the opportunity for producers, extensionists, practitioners and scientific experts in the field of native plant research, production, and utilization to meet, exchange information, and set goals for advancement. Much has been learned since the first Summit and advances have been made towards improving the production and utilization of native plant materials. This year's native Plant Summit revisits the key aspects of native plant utilization – from establishment of stands and their management to meet defined objectives, to the enhancement of stands for sustained long-term productivity. The main agenda items include:

Session 1: Stand Installation
Session 2: Stand Management
Session 3: Stand Enhancement
Session 4: Field Burn Demonstration

For more information, contact Dwight Tober or visit http://www.nativeplantsolutions.com

Dwight Tober, Plant Materials Specialist

Woody Seeding Trial

Direct seeding trial of riparian woodlands in North Dakota

A direct woody seeding trial was seeded last fall near Walhalla, North Dakota. The trial uses direct seeding as a method to reestablish riparian woodlands. Pictured above, an acorn seeder is planting bur oak acorns. This machine was designed to directly plant various large seeded species. Species planted in this trial include basswood, bur oak, green ash, hackberry, birch, chokecherry, false indigo, and ironwood. These species were seeded using both drill and broadcast seeding methods. Six acres were seeded as a cooperative effort between NRCS, North Dakota Forest Service, Pembina County SCD, and Johnson Farms. Results of this trial will be made available after additional information is gathered.

Wayne Duckwitz, Plant Materials Center Manager

Certified Seed/Plant Prices – January 2001

The following prices have been established for certified grass seed/plants produced at the Bismarck Plant Materials Center. **This seed is for sale to commercial growers through North Dakota State University for the express purpose of certified seed production.** The cost is per Pure Live Seed (PLS) pound. Shipping costs of 30 cents per pound will be added to the total for U.S. orders. Canadian orders will be shipped freight collect unless other arrangements are made. A confirmation order will be sent from the Plant Materials Center. The buyer will be billed from the North Dakota State University Foundation Seedstocks Program at Fargo, ND. **Payment in full must be received before seed will be shipped.** For ordering information, please contact Dwight Tober by e-mail at dwight.tober@nd.usda.gov or phone (701) 530-2075.

VARIETY	CLASS*	COMMON NAME	COST/PLS LB
Badlands ecotype	select (G2)	little bluestem	18.00
Bad River ecotype	select (G2)	blue grama	16.00
Bismarck ecotype	select (G1)	buffalograss (vegetative 3-inch plugs)	.50 per plug
Bison	foundation	big bluestem	14.00
Bonilla	foundation	big bluestem	14.00
Dacotah	foundation	switchgrass	4.00
Forestburg	foundation	switchgrass	4.00
Lodorm	foundation	green needlegrass	15.00
Mandan	foundation	Canada wildrye	6.00
Pierre	foundation	sideoats grama	15.00
Red River	select (G1)	prairie cordgrass	50.00
Rodan	foundation	western wheatgrass	10.00
Tomahawk	foundation	Indiangrass	16.00
Introduced Grasses			
Mankota	foundation	Russian wildrye	5.00
Nordan	foundation	crested wheatgrass	4.00
Manska	foundation	pubescent wheatgrass	5.00
Reliant	foundation	intermediate wheatgrass	5.00
Mandan 759	foundation	pubescent wheatgrass	5.00
Native Forbs/Legumes			
Bismarck germplasm	select (G1)	narrow-leaved purple coneflower	150.00
Bismarck germplasm	select (G1)	purple prairieclover	50.00
Bismarck germplasm	select (G1)	stiff sunflower	150.00
Medicine Creek germplasm	select (G1)	Maximilian sunflower	50.00

*Generation number for select class material is shown in parentheses (G1 = generation 1).

2001 Field Season Calendar of Activities

The following calendar of plant materials activities is for your information and participation, whenever possible. Data collection and plant evaluation is often dependent upon assistance from various NRCS and other agency offices. This is also an excellent opportunity for training and technology transfer. We greatly appreciate the help when we are able to work with your office personnel! Dates and activities are subject to change.

Date	Personnel	Location	Activity
April 25-27	Tober, Stange	Walhalla, ND	Herbicide application on direct woody seedings
May 7-8	Tober, Schmidt	Ottertail Lake Project, MN	Shoreline stabilization project
May 9-11	Tober, Halko, Printz, Field Office staff	Area I and Area II, North Dakota	Prairie cordgrass demonstration plots
May 15-18	Tober, ECS Staff, Field Office staff	Highmore, SD; and Becker, Morris, Staples, Grand Rapids Field Evaluation Plantings, MN	Spring evaluation and planting – woody FEPs and grass plots
May 29-31	Tober	Fargo and Washburn, ND	Prairie landscaping plantings
June 4-8	Tober, Knudson, Stange, Halko	Bottineau and Walhalla, ND	Woody FEP maintenance and evaluation of direct seeding woody project
June 21-22	Knudson	Dickinson FEP, ND	Woody FEP maintenance
June 25-29	Tober, Stange	Selected Field Offices in ND	Field planting review
July 17-19	PMC staff, Tober, ECS staff, 24 selected employees	Bismarck PMC	Plant Materials training and tour
July 23-27	Tober, selected Field Offices	Selected Field Offices in MN	Field evaluations of false indigo, and sandbar willow
July 30- Aug 2	PMC Staff	Morris, MN	Harvest cool season grass plots
August 6-10	Tober, Yapp, selected Field Office Staff	Selected Field Offices in SD	Field planting reviews
August 14-15	PMC staff, SRCs, STCs, Tober	Watertown, SD	PMC Advisory Committee
August 20-23	Tober, MN ECS Staff	Grand Rapids, Staples, MN	Woody FEP evaluations
September 4	Tober, Yapp	Highmore, SD	Evaluate woody FEP
September 4-7	Knudson	Bottineau, Dickinson, ND	Evaluate woody FEPs
September 5-7	Tober, MN ECS Staff	Morris and Becker, MN	Woody FEP evaluations and cool season grass evaluations at Morris
October 1-5	Stange, PMC Staff	To be announced	Tree care workshops
October 15-17	Tober, Demchik	Central Lakes Staples Community College, MN	*Echinacea angustifolia* dormant seeding

2000 Staffing/Advisors

PMC Advisory Committee
Thomas Jewett, State Conservationist, North Dakota
Dean Fisher, State Conservationist, South Dakota
William Hunt, State Conservationist, Minnesota

State Resource Conservationists
Myron Senechal, North Dakota
Ronald Nadwornick, South Dakota
Dennis Neffendorf, Minnesota

Plant Materials Specialist
Dwight Tober, Bismarck, North Dakota

PMC Staff
Wayne Duckwitz, Manager/Range Conservationist
Michael Knudson, Assistant Manager/Forester
Nancy Jensen, Agronomist
Rachel Bergsagel, Biological Technician/IRM
Earl Aune, Biological Technician/Field Foreman
Melissa Reep, Secretary
Michael Bellon, Seed Processing Technician
Barrett Berube, Seasonal WAE
Jack Biesterfeld, Seasonal WAE
Jesse Biesterfeld, Seasonal WAE
Lee Hanson, Seasonal WAE
Jennifer Harmon, Seasonal WAE